

IN THE SPECIFICATION:

Please replace paragraph [0007] with the following amended paragraph:

[0007] An ear extends beyond the external edge of each vane at each of its sides and a pin is secured to each ear and extends inwardly towards the other vane's ear. The pin of each ear is seated in one ~~[[if]]~~ of a pair of races continuously extending in portions of the interior sidewall of the housing, the races circumscribing the shaft and formed so as to provide proper extending and retracting movement of the vanes as the pins move along it during rotation of the rotor. A plurality of slots are formed in the rotor disks, aligned with the rotor slots and slidably receiving the sides of the vanes and corresponding ears. The rotor disk, housing and vanes are constructed so that, during operation of the device, fluid entering the housing through the inlet ~~slot~~ port is carried by the rotor in compartments formed between adjacent vanes, the rotor surface between those vanes, the rotor disk and corresponding portions of the end walls and sidewall of the housing, until the adjacent vanes encompass the outlet port where the fluid is allowed to leave the compartment.

Please replace paragraphs [0019] – [0023] with the following amended paragraphs:

[0019] In the following description, similar features in the drawings have been given similar reference numerals ~~numeral~~.

[0020] Turning to Figure 1, there is illustrated a rotary piston device 2 according to the present invention. The rotary piston device ~~Device~~ 2 comprises a shaft 4 rotating about a longitudinal axis A-A. A rotor 6 is centrally secured to shaft 4. Rotor 6 has a body with a cylindrical surface 8 extending between spaced ends 10. A rotor disk 12 is provided at each end of rotor 6, secured at its center to shaft 4 and to the corresponding end 10 of rotor 6. Shaft 4, rotor 6 and rotor disks 12 may be of integral construction.

[0021] A housing 14 encases shaft 4, rotor 6 and rotor disks 12 within an internal cavity 16. Shaft 4 extends outside housing 14, as illustrated. Housing 14 has end walls 18 adjacent to rotor disks 12 and an interior sidewall 20. Fluid inlet port 22 and fluid outlet port 24 are provided in interior sidewall 20.

[0022] As can be seen in Figure 2 [[1]], first portion 26 of the interior sidewall 20 is cylindrical and curved with constant radius over an angle of about 180°. This portion is spaced a constant distance from corresponding portions of the cylindrical surface 8 of rotor 6. A second portion 28 of the interior sidewall 20 extends between the extremities of this first portion 26 of the interior sidewall. The second portion ~~Portion~~ 28 has a curvature of greater radius than that of the first portion.

[0023] Three or more (four are illustrated) equally spaced, radially oriented slots 30 in rotor 6 extend across its cylindrical surface 8. This cylindrical surface 8 is proximal to the interior sidewall 20 of the housing 14 at a point 32 on portion 28, about midway between the inlet and outlet ports 22 and 24. Inlet and outlet ports 22 and 24 are located in this second portion 28.

Please replace paragraphs [0027] – [0029] with the following amended paragraphs:

[0027] It is preferred that vanes 34 be as lightweight as possible, while maintaining their strength. This is accomplished for example by having vanes with hollowed portions, the hollowed portions extending from the internal edge 36 to the external edge 38. In the embodiment illustrated, which permits rotation of the shaft and rotor in either direction, one or more apertures 54 extend from internal edge 36 to external edge 38 of each vane. An external vane seal 56, which may be made for example of brass, is movably seated within a pocket 58 in external edge 38, both external vane seal 56 and pocket 58 extending the length of that external edge. This seal is forced, under pressure from fluid in the adjacent “upstream” compartment 50 (to the right of vane 3 in Figure 3), to the opposite side of pocket 58, enabling fluid from that compartment 50 to pass down through apertures 54, to the bottom of the corresponding slot 30. In this way, high pressure from the fluid[[,]] in that compartment 50 is passed to the bottom of this slot 30. Since greater surface area is exposed to the high pressure fluid of this compartment 50 by internal edge 36 of vane 34 than that formed by the exposed surface of pocket 58 plus the exposed external edge 38 of vane 34 and the exposed upper surface of external vane seal 56, additional upward sealing force between the vane and the interior sidewall 20 of housing 14 is provided to complement the upward forces exerted

on vane 34 by pins 44 in races 46. This feature significantly assists the sealing of fluid within a particular compartment 50 as it picks up fluid, under pressure as that compartment passes inlet port 22, and reduces its ability to escape into the adjacent, downstream compartment 50, on the other (left) side of that vane 34, until such time as that vane passes outlet port 24, at which point the pressure in that first chamber 50 is removed or reduced.

[0028] If the shaft 4 and rotor 6 are to move in the opposite direction, then the external vane seal 56 will move to the other side of pocket 58, as the higher pressure fluid will be in the other compartment 50 (to the left of the vane 34 in Figure 3), this external vane seal 56 still providing, on its other (left) side, an opening through aperture 54 for higher pressure fluid from that compartment 50, to pass down vane 34 to the bottom of slot 30. The seals, vanes, rotor and turbine otherwise operate in a similar fashion to that which has already been described.

[0029] As can be seen in Figure 5, it is preferred that a series of apertures 60 be provided in each rotor disk, from side to side, one such aperture being positioned in each quadrant of the rotor disk between each pair of adjacent slots 48. Each aperture 60 permits passage of high pressure fluid from each compartment 50 between adjacent vanes 34, to the area 62 between the outer end 64 of rotor disk 12 and the corresponding portion of the ~~interior~~ end wall 18 of housing 14. A pair of annular piston seals 68, constructed as illustrated in cross-section in Figure 5, are seated on either side of this aperture 60, on this exterior side of rotor disk 12. High pressure fluid on pistons 70 of annular seals 68 drives wedge 72 to expand, outwardly, the body portion 74. It is preferred that a reef valve 75 be associated with aperture 60 so as to lessen the drop in pressure in space 62, when fluid pressure drops in corresponding compartment 50, thereby preserving the effectiveness of seals 68 as lower pressure conditions in the fluid in (right hand in Figure 3) compartment 50 occur, thereby providing enhanced sealing of the space between rotor disk 12 and end wall 18 against passage of fluid to the other side of these seals. This construction takes pressure off the rotor disks by allowing some of that pressure to be transferred[[,]] from chamber 50, through aperture 60, to the inner wall 18 of housing 14.

Please replace paragraph [0034] with the following amended paragraph:

[0034] While not illustrated, a plurality of rotary piston devices 2 according to the present invention can be banked together on a common shaft 4 for use for example in a fluid drive transmission (e.g. in bulldozers or the like).

Please replace the paragraph prior to the claim listings with the following amended paragraph:

~~THE EMBODIMENTS OF THE INVENTION WHICH IN WHICH AN
EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:
-WHAT I/WE CLAIM AS MY/OR INVENTION:-~~ WHAT I CLAIM AS MY
INVENTION: